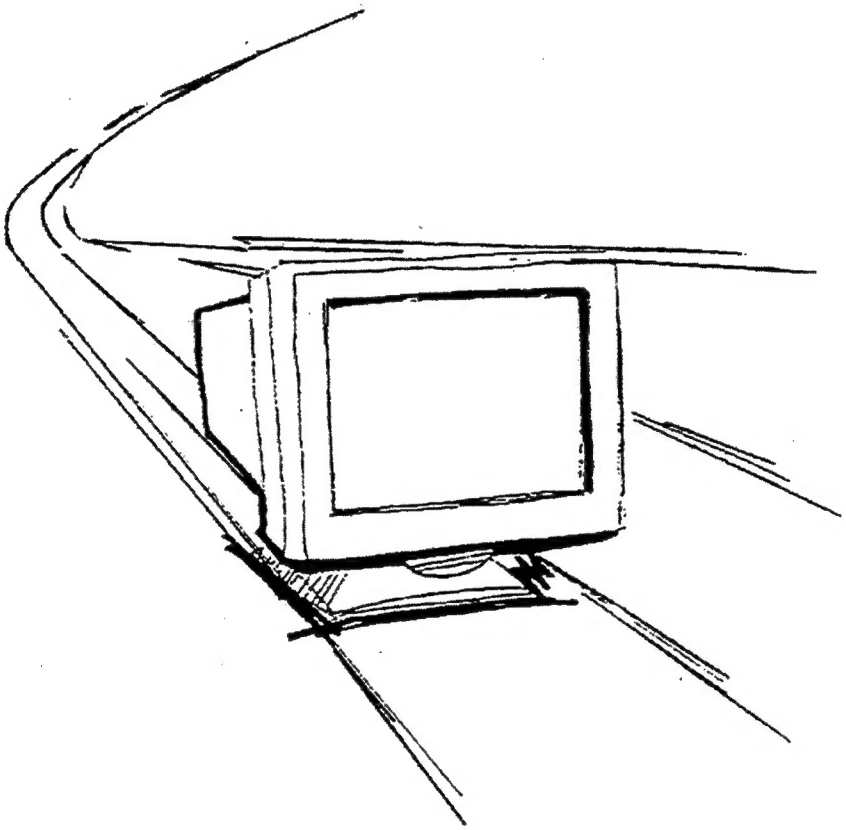
1451C/CLR

TROUBLESHOOTING GUIDE



CTX

The Monitor Specialists

EDITION 1
July 1995

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1.0 IMPORTANT NOTICE & INTRODUCTION

IMPORTANT NOTICE

Please read before attempting service

1. While the monitor is in operation, do not attempt to connect or disconnect any wires.
2. Make sure the power cord is disconnected before replacing any parts in the monitor.
3. When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the monitor.
4. When servicing the H.V. area, be certain that the C.R.T anode is safely discharged before removing the anode cap.
5. Caution must exercised when servicing this monitor.

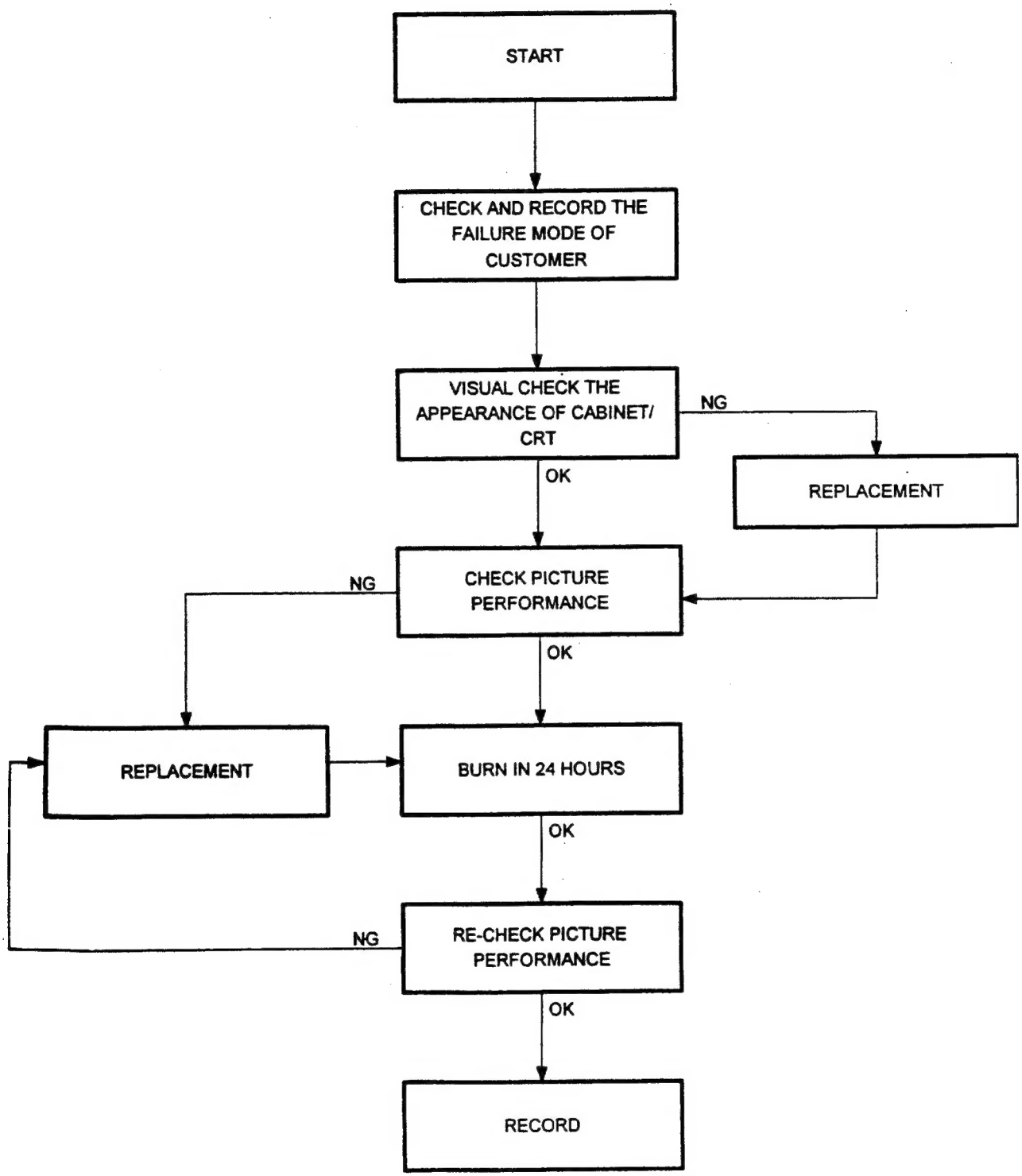
INTRODUCTION

Enhanced repair capabilities

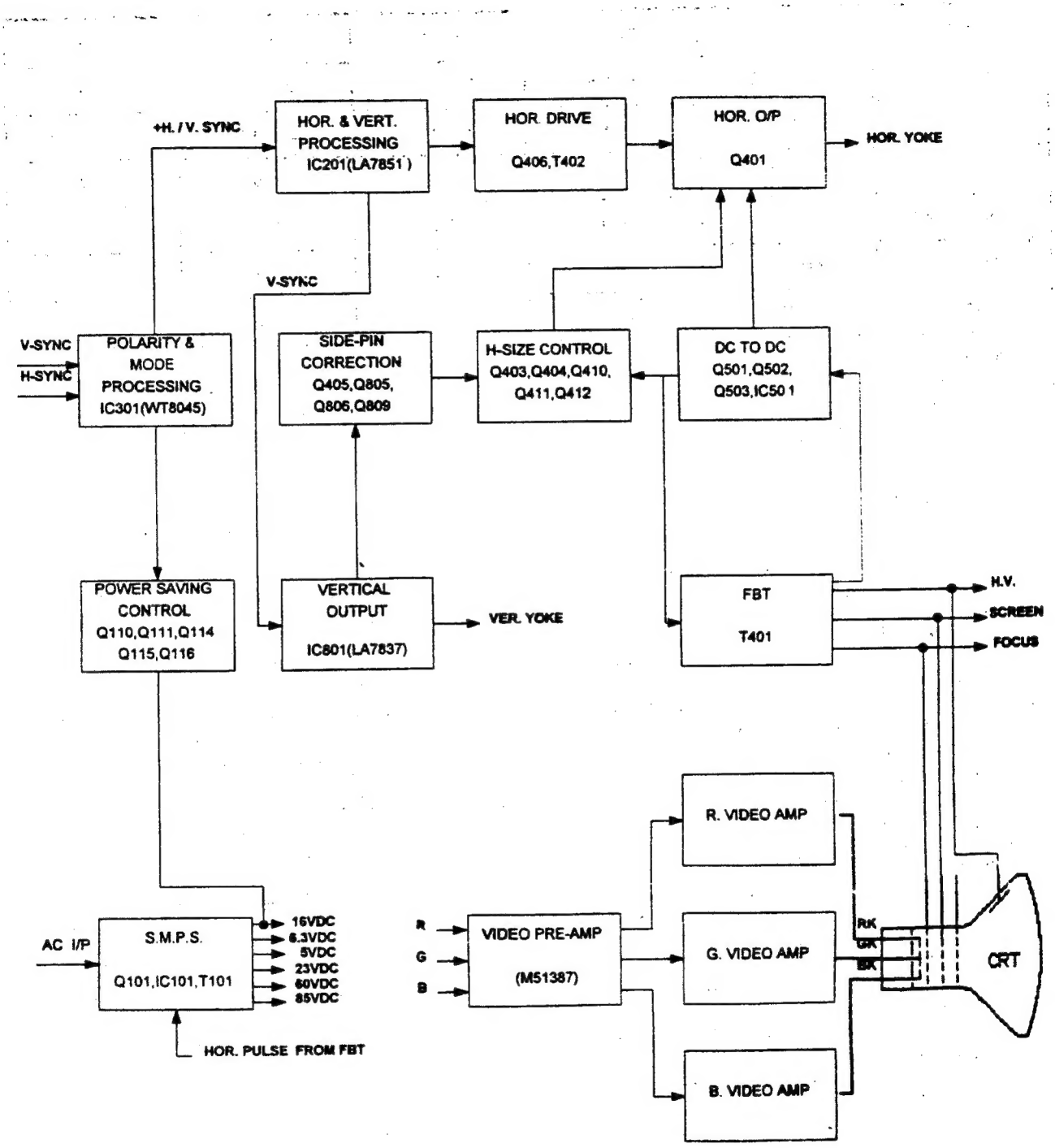
This troubleshooting guide is edited for model 1451C/CLR when service is necessary. there are four primary parts included in this troubleshooting guide which offer the easiest way to locate problem points and repair the machine to the best possible condition.

1. The Adjustment section offers the adjustable method, steps and all data of the factory's initial settings which can make the machine get the best performance at that time. By the way, before adjusting, the machine must be warmed up for at least 10 minutes and the CRT face must be in an east ward direction.
2. The Troubleshooting section has four main parts including: power supply, power saving, CRT, deflection & video circuit. Each offers fast repair routine and the IC, transistor voltage records against all specified signal modes. These voltage readings are measured with a HP 34401A multimeter with input impedance 10M Ω (0.1V ~ 1000V range) and waveforms shown on circuit schematics are measured by a Tektronix TDS 520 digital oscilloscope, the monitor receives VGA-400 full white square pattern.
3. The CRT contrast list offers repairmen / technicians the contrast data when CRT replacement is necessary from a different type of CRT.
4. The Spare parts list offers the CTX part number (P/N) which is used frequently by repairmen / technicians. For details please refer to the service guide or service manual. If there is any engineering change regarding this model, CTX will issue the updated information by a non-periodical Technical Bulletin.

2.0 GENERAL MAINTENANCE PROCEDURE



3.0 FUNCTION BLOCK DIAGRAM BLOCK



4.0 TIMING MODE

NAME	VGA-350		VGA-400		VGA-480		SVGA I		SVGA II	
PIXEL RATE	25.2 MHZ		25.2 MHZ		25.2 MHZ		36 MHZ		40 MHZ	
Fh	31.5 KHZ		31.5 KHZ		31.5 KHZ		35.156KHZ		37.879 KHZ	
Fv	70 HZ		70 HZ		60 HZ		56.250HZ		60.3165 HZ	
INTERLACE MODE	NO		NO		NO		NO		NO	
OUTPUT	ANALOG		ANALOG		ANALOG		ANALOG		ANALOG	
FULL SCALE Vpp	1,000		1,000		1,000		1,000		1,000	
SYNC ON R/G/B	NO		NO		NO		NO		NO	
CONTROL BITS	0000 0000		0000 0000		0000 0000		0000 0000		0000 0000	
UNIT	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us
FRAME BORDER-H		us		us		us		us		us
FRAME BORDER-V		ms		ms		ms		ms		ms
H TOTAL	800	31.78 us	800	31.78 us	800	31.78 us	1024	28.444 us	1056	26.4 us
H DISPLAY	641	25.42 us	641	25.42 us	641	25.42 us	800	2.222 us	800	20.0 us
H REAR PORCH	48	1.91 us	48	1.91 us	48	1.91 us	128	3.556 us	88	2.2 us
H SYNC WIDTH	96	3.81 us	96	3.81 us	96	3.81 us	72	2.0 us	128	3.2 us
H SYNC POLARITY	+		-		-		-		+	
VTOTAL	450	14.27 ms	450	14.27 ms	525	16.68 ms	625	17.778 ms	628	16.579 ms
V DISPLAY	350	11.12 ms	400	12.71 ms	480	15.25 ms	600	17.067 ms	600	15.840 ms
V REAR PORCH	60	1.91 ms	35	1.11 ms	33	1.05 ms	22	0.626 ms	23	0.607 ms
V SYNC WIDTH	2	0.06 ms	2	0.06 ms	2	0.06 ms	2	0.057 ms	4	0.106 ms
V SYNC POLARITY	-		+		-		-		+	
EQUALIZATION ?	NO		NO		NO		NO		NO	
SERRATION ?	NO		NO		NO		NO		NO	
COMP SYNC POLARITY	-		-		-		-		-	

NAME	SVGA Ⅲ		VESA-480		8514A		8514NI	
PIXEL RATE	50 MHZ		31.5 MHZ		44.9 MHZ		65 MHZ	
Fh	48.077 KHZ		37.860 KHZ		35.5 KHZ		48.363 KHZ	
Fv	72.187 HZ		72.809 HZ		87 HZ		60 HZ	
INTERLACE MODE	NO		NO		VIDEO		NO	
OUTPUT	ANALOG		ANALOG		ANALOG		ANALOG	
FULL SCALE Vpp	1,000		1,000		1,000		1,000	
SYNC ON R/G/B	NO		NO		NO		NO	
CONTROL BITS	0000 0000		0000 0000		0000 0000		0000 0000	
UNIT	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us
FRAME BORDER-H		us		us		us		us
FRAME BORDER-V		ms		ms		ms		ms
H TOTAL	1040	20.80 us	832	26.413 us	1264	28.10 us	1344	20.677 us
H DISPLAY	800	16.0 us	640	20.317 us	1024	22.80 us	1024	15.754 us
H REAR PORCH	64	1.28 us	128	4.063 us	52	1.15 us	160	2.462 us
H SYNC WIDTH	120	2.40 us	40	1.270 us	176	3.91 us	136	2.092 us
H SYNC POLARITY	+		-		+		-	
VTOTAL	666	13.853 ms	520	13.735 ms	408	11.50 ms	806	16.667 ms
V DISPLAY	600	12.480 ms	480	12.678 ms	384	10.80 ms	768	15.880 ms
V REAR PORCH	23	0.478 ms	28	0.740 ms	20	0.56 ms	29	0.600 ms
V SYNC WIDTH	6	0.125 ms	3	0.079 ms	4	0.11 ms	6	0.124 ms
V SYNC POLARITY	+		-		+		-	
EQUALIZATION ?	NO		NO		NO		NO	
SERRATION ?	NO		NO		NO		NO	
COMP SYNC POLARITY	-		-		-		-	

5.0 ADJUSTMENT

5.1 1451C ADJUSTMENT

- voltage adjustment: VR101/SVGA II

  1. Use SVGA II timing for input signal.
  2. Attach the multimeter (with a DC voltage range of 200V) between cathod of D111 and GND, and adjust VR101 to get 85V ± 0.2V.

- H-F/V adjustment: VR301/SVGA (37.8KHz)

  Measure the DC voltage between TP3 and GND, and adjust VR301 to get 9V±0.05V.

- Hi-voltage adjustment: VR501 / SVGA II

  a. Turn the power switch off before attaching multimeter with a high voltage probe by a factor 1000:1 between CRT anode and GND.
  b. Adjust VR501 to make sure the measurement readings are 24V ± 0.5V (ie CRT anode voltage is 24KV±0.5KV).

- Horizontal hold adjustment: VR201/SVGA

  Connect TP1 to GND and adjust VR201 to get picture stand or scroll toward left or right slowly when input is SVGA II.

- H-PHASE adjustment: EXT VR(VR202) / VGA-480

  Adjust EXTERNAL H-PHASE to shift picture to the center of screen.

- V-line adjustment: VR801/VGA-480

  First adjust V-CENTER EXTERNAL VR to make picture to the V-center of the screen, and then adjust VR801 to correct the V-linearity of crossh-hatch pattern.

- H-WIDTH adjustment: VR401/VGA-480

  a. Adjust EXTERNAL H-WIDTH VR to get picture width just full screen.
  b. Adjust EXTERNAL H-WIDTH VR to get the horizontal width of every mode is 252 ± 5mm.

- V-SIZE adjustment: EXT VR

  Adjust EXTERNAL V-SIZE VR to get the vertical size of every mode is 189±7mm.

- PINCUSHION adjustment: VR803/VGA-480

  Adjust VR803 to parallel the picture's right & left edge each other.

- FOCUS adjustment: FOCUS VR/VGA-480

  Adjust FOCUS VR on the FBT to attain a balanced focus for all points on the screen.

- White balance adjustment:

  a. Pre adj. & brightness settings (Before adjusting, CRT must be degaussed.)
  (1) Set the VR601,602,603,604,605,606 on mechanical center, and the Brightness VR to the click point, the Contrast VR to Max..
  (2) Operating on VGA-480 mosaic pattern and adjust the SCREEN VR to set the raster luminance between 2 ~ 3FL, are measure by color Analyzer.
  (3) Adjust VR604,605,606 (BIAS VR) to make C.I.E. coordinates value as x=0.281 ± 0.01, y=0.311 ± 0.01 are measured by color analyzer.
  (4) Change timing to VGA-400 color bar pattern, correct SCREEN VR whitch on the FBT to make raster brightness disapper and the "1" row of color bar pattern (as below figure) visible obscurely.
  (5) Operating or VGA-480 mosaic pattern again, check the Brightness of Mosaic pattern is between 67 ~ 70FL. If the brightness isn't net, adjust VR603, to make it and return to step(2).

Brightness		R+B				B+G	R+G		
	15	BRIGHT BLUE	BRIGHT RED	BRIGHT PURPLE	GREEN	BLUE + GREEN	RED + YELLOW	WHITE	7
↑	14								6
|	13								5
reduce |	12								4
|	11								3
|	10								2 →visible
|	9								1 →visible
↓	8								0 obscurely

b. White balance fine regulation:

(1) Receive VGA-480 timing, full white square pattern.

(2) Adjust BRIT. VR. to MIN., CONT. VR. to MAX..

(3) Adjust VR601,602,603 to make x=0.281 ± 0.01, y=0.311 ± 0.01, are measured by color Analyzer.

(4) Change the BRIT. VR to the click point and the CONT. VR between 1 ~ 2FL, then adjust VR604,605,606 (BIAS VR) to get X=0.281 ± 0.005, Y=0.311 ± 0.005, are measured by color Analyzer.

(5) If the white balance is not met, repeat step (2) ~(4).

- ADJUSTMENT FOR CONVERGENCE

(1) Produce a magenta crosshatch on the display.

(2) Adjust the focus for the best overall focus on the screen.

(3) Also adjust the brightness to the desired condition.

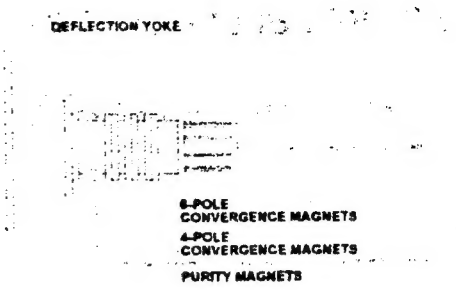
(4) Vertical red and blue lines are converged by varying the angle between the two tabs of the 4 pole magnets on the PCM assembly. (See diagram below)

(5) Horizontal red and blue lines are converged by moving the two tabs at the same time keeping the angle between them constant.

(6) Produce a white crosshatch pattern on the display.

(7) Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.

(8) Horizontal green and magenta lines are converged by moving the two tabs at the same time. keeping the angle between them constant.

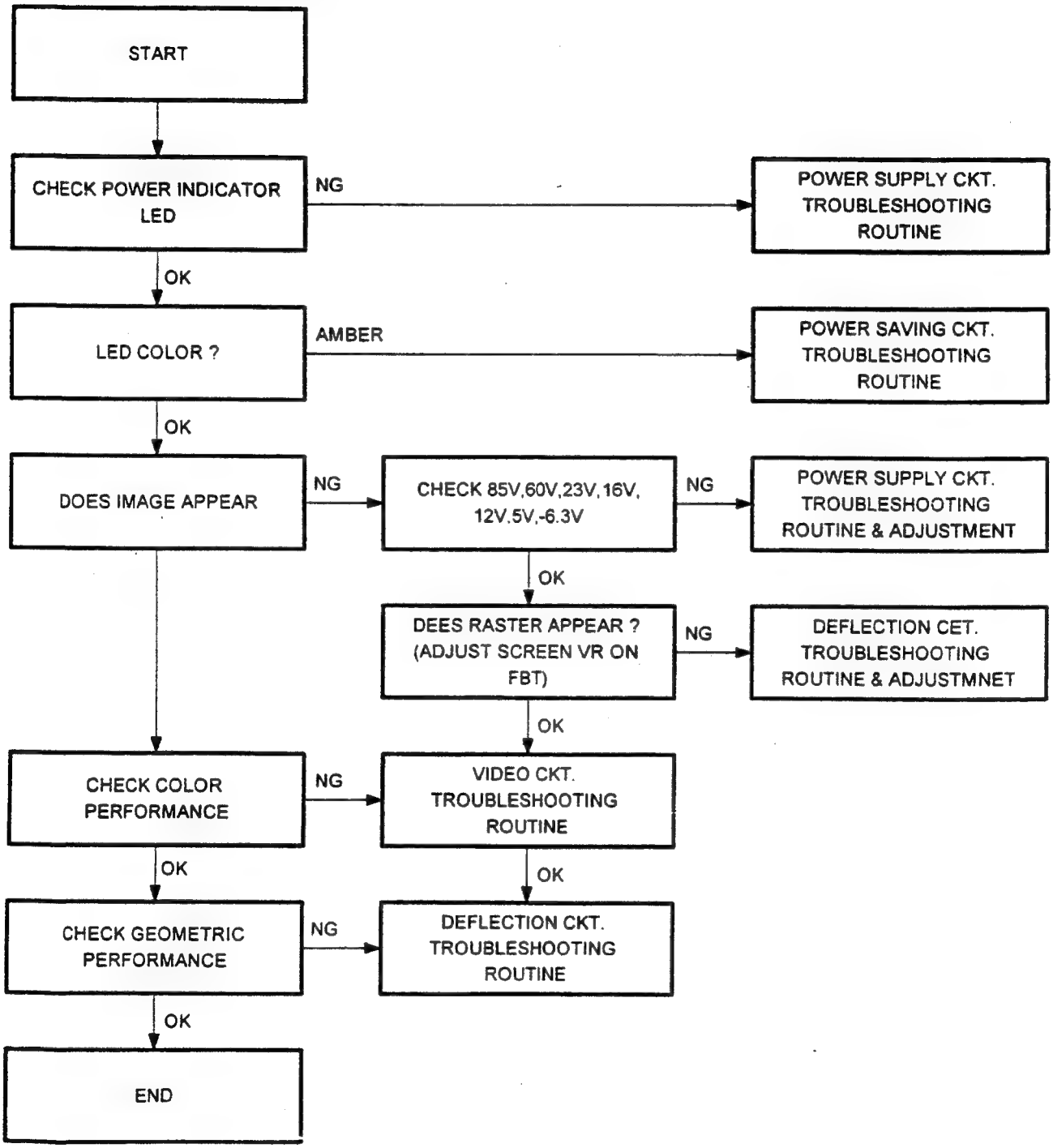


PCM:PURITY CONVERGENCE MAGNET

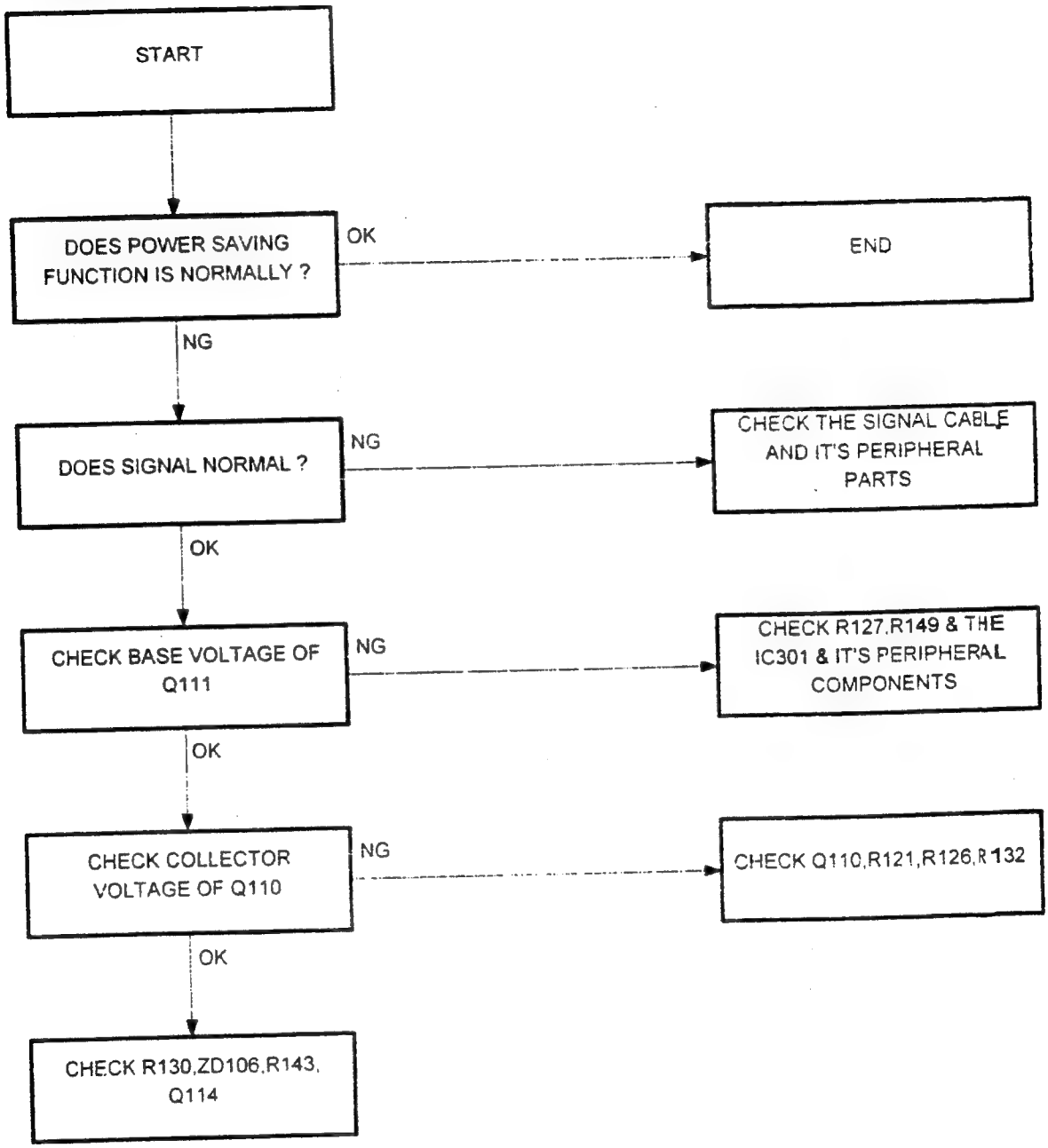
Note: Please don't adjust the purity magnets when service occurs.

6.0 TROUBLESHOOTING

6.1 MAIN TROUBLESHOOTING ROUTINE



6.2 POWER SAVING CIRCUIT TROUBLESHOOTING ROUTINE



VOLTAGE MEASURED RECORD

TEST CONDITIONS: AC LINE IN:110V,220V/60Hz

TIMING : VGA-350

PATTERN: CROSS HATCH

STATUS : NORMAL

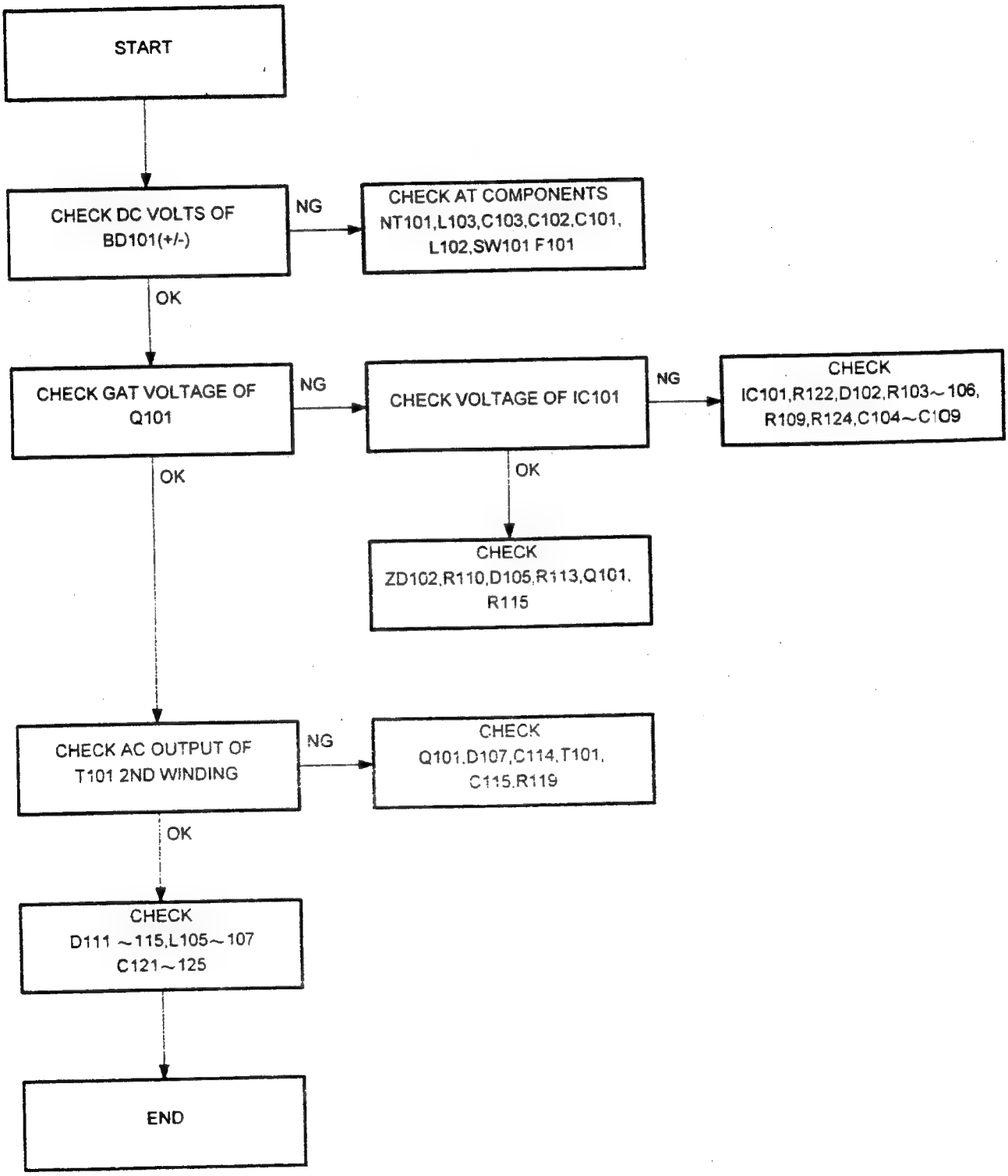
VOLTAGE MEASURED RECORD

Unit: Volt

TR	Q110 (B772)			Q111 (2SC945)			Q114 (2SD882)		
PIN / MODE	B	C	E	B	C	E	B	C	E
NORMAL	22.64	23.32	23.35	0.73	0.03	GND	12.99	15.04	12.34
POWER SAVING	27.36	1.19	27.34	0.01	27.38	GND	1.17	14.14	0.63

TR	Q115 (2SC945)			Q116 (2SA733)			IC301 (8045)		
PIN / MODE	B	C	E	B	C	E	14 (PM1)	15 (PM2)	
NORMAL	6.79	12.99	6.16	9.34	0.33	6.3	3.12	3.12	
POWER SAVING	0.35	1.17	0.63	3.03	3.65	3.73	0.0	0.0	

6.3 POWER SUPPLY CIRCUIT TROUBLESHOOTING ROUTINE



VOLTAGE MEASURED RECORD

TEST CONDITIONS: AC LINE IN:110V,220V/60Hz

TIMING : VGA-350

PATTERN: CROSS HATCH

STATUS : NORMAL

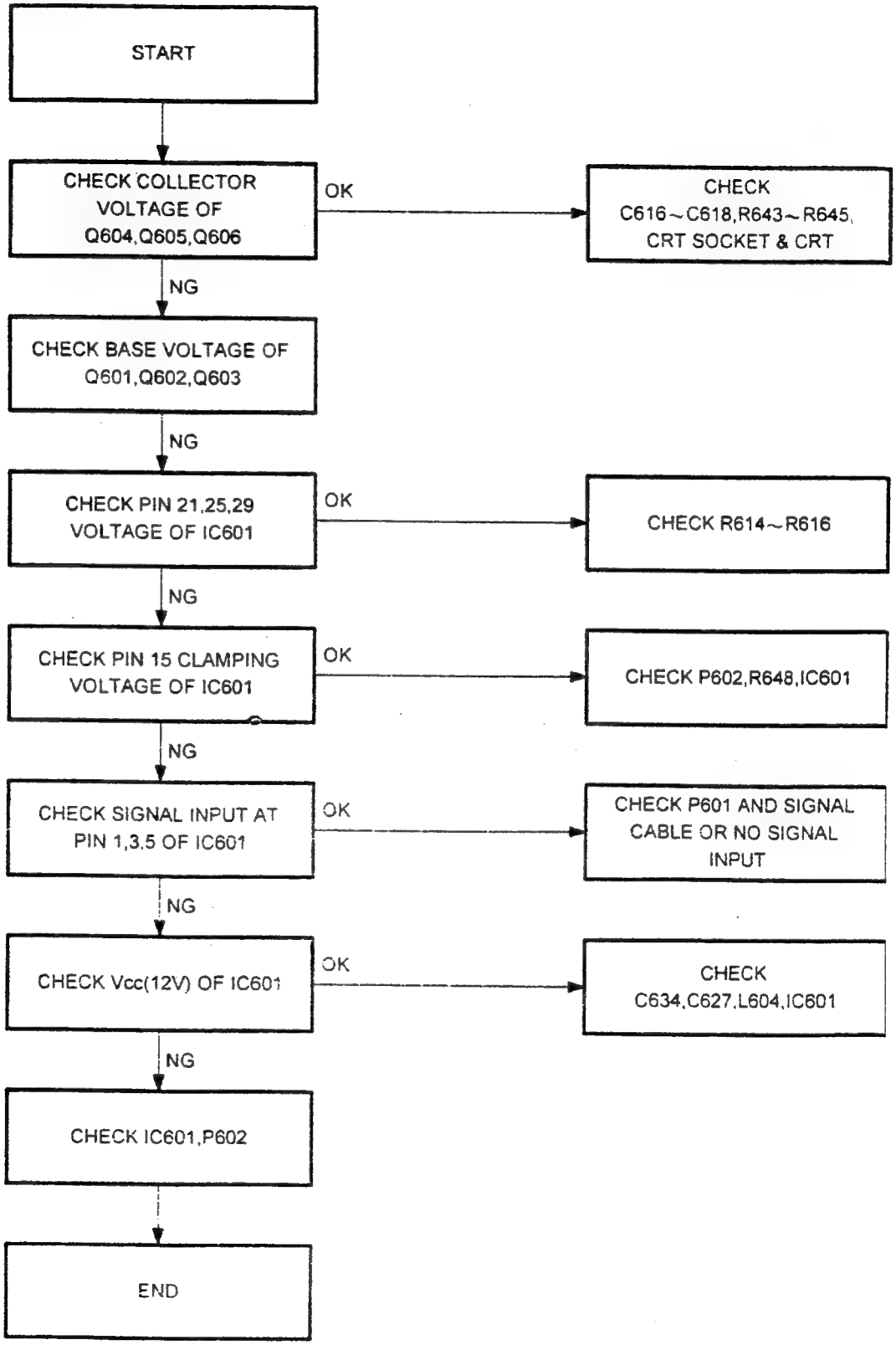
VOLTAGE MEASURED RECORD

Unit: Volt

TR	Q101 (2SK1118)		
PIN MODE	G	D	S
110V	3.2	143.0	0.07
220V	1.25	302.65	0.03

IC	IC101 (3842N)							
PIN MODE	1	2	3	4	5	6	7	8
110V	2.89	2.48	0.22	0.48	GND	3.82	16.88	4.98
220V	3.72	2.47	0.35	0.52	GND	1.75	16.84	4.98

6.4 VIDEO CIRCUIT TROUBLESHOOTING ROUTINE



The following voltage records was measured with cross-hatch pattern.

Transistor & Integration circuit

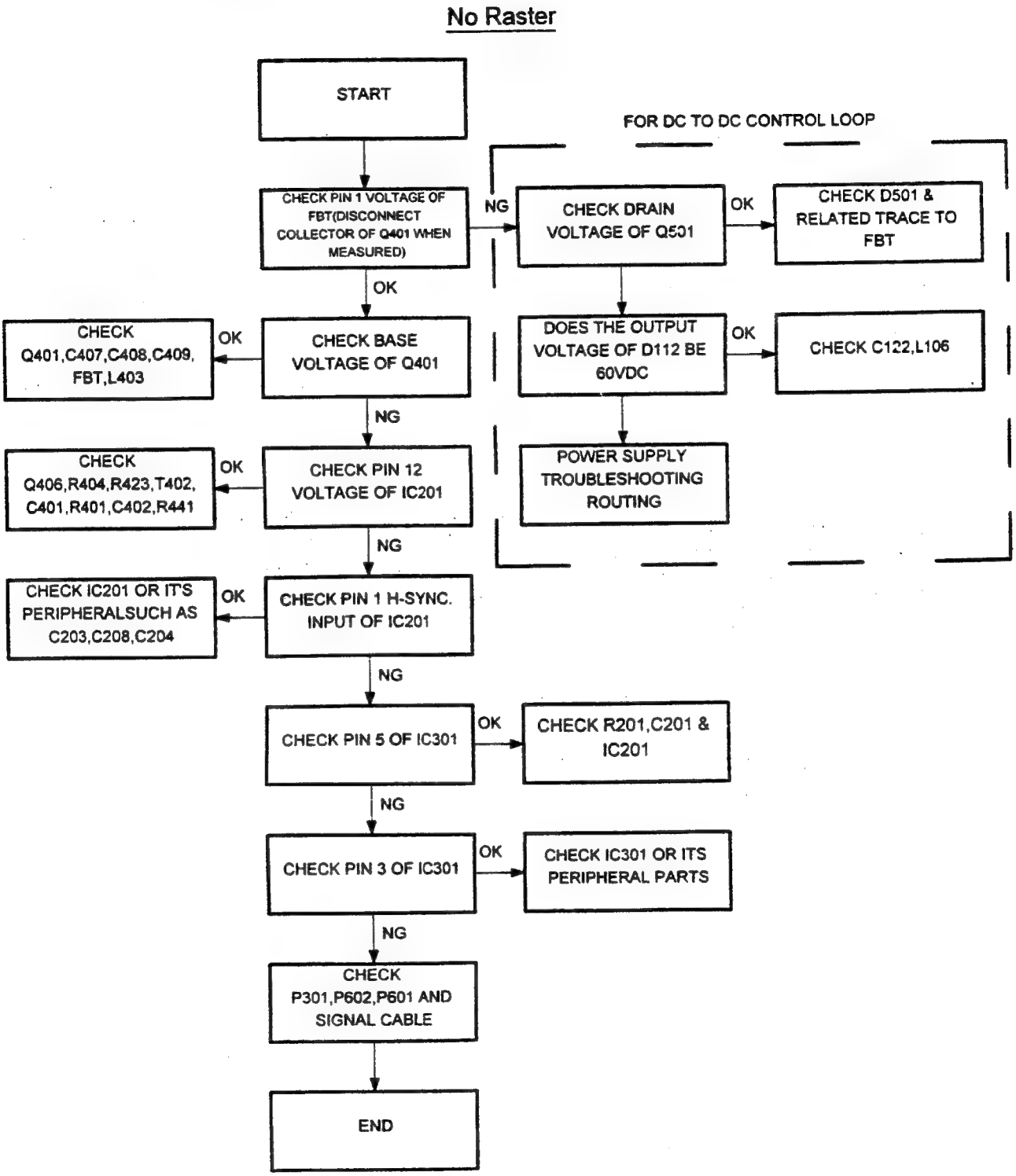
TR	Q601 (PH2369)			Q602 (PH2369)			Q603 (PH2369)		
PIN / MODE	B	C	E	B	C	E	B	C	E
VGA-350	1.66	9.44	1.61	1.66	9.45	1.61	1.67	9.43	1.60

TR	Q604 (2SC3788)			Q605 (2SC3788)			Q606 (2SC3788)		
PIN / MODE	B	C	E	B	C	E	B	C	E
VGA-350	10.06	74.22	9.44	10.06	74.24	9.45	10.07	74.43	9.43

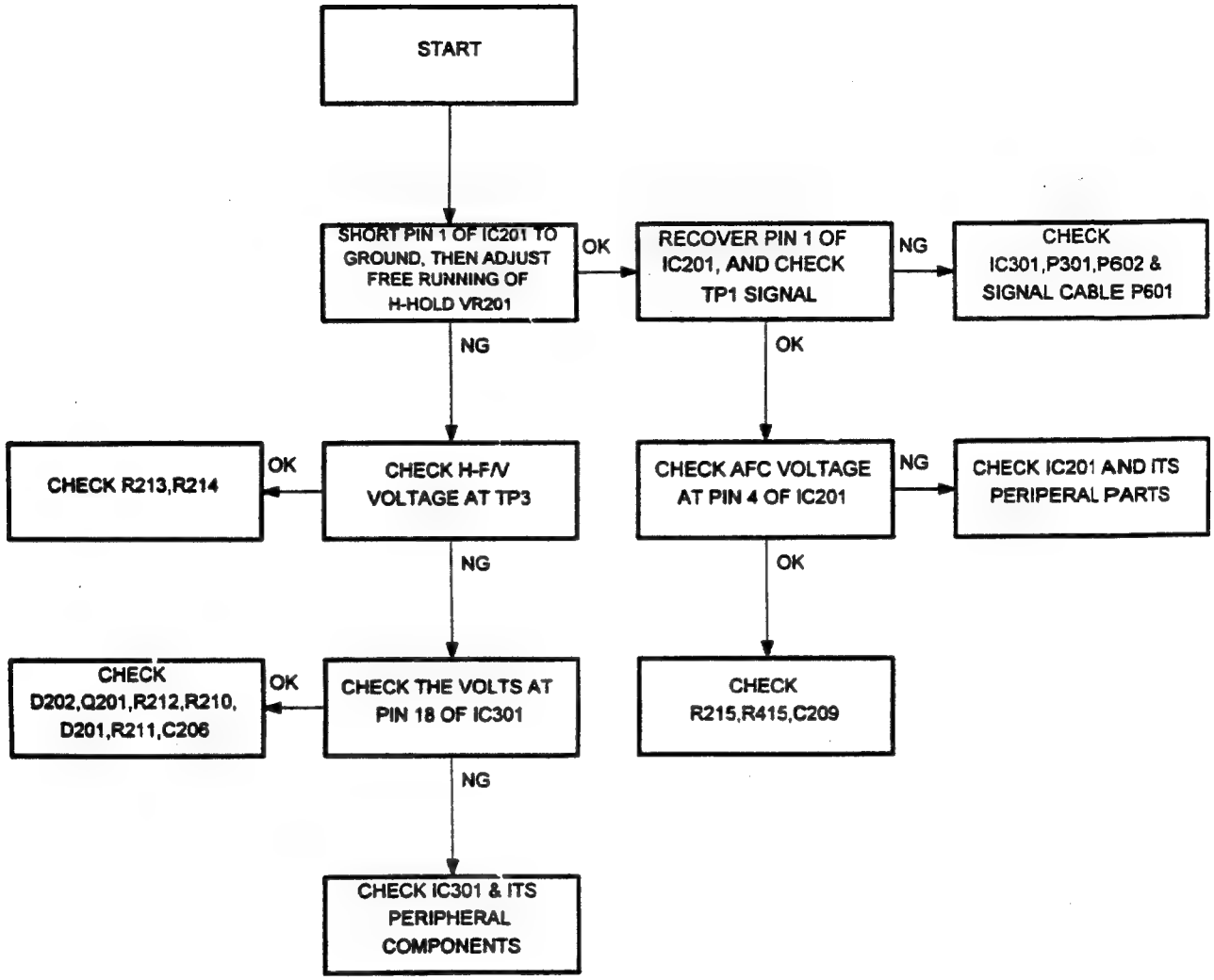
IC	IC601 (M51387P)								
PIN / MODE	2	3	4	6	7	8	10	11	12
VGA-350	12.27	2.74	5.0	12.27	2.73	5.03	12.27	2.74	5.23
PIN / MODE	14	15	16	17	18	19	20	21	22
VGA-350	6.76	0.47	3.34	GND	GND	3.51	4.28	1.67	GND
PIN / MODE	23	24	25	26	27	28	29	30	
VGA-350	3.5	4.29	1.66	GND	3.47	4.27	1.65	12.27	

6.5 DEFLECTION CIRCUIT TROUBLESHOOTING ROUTINE

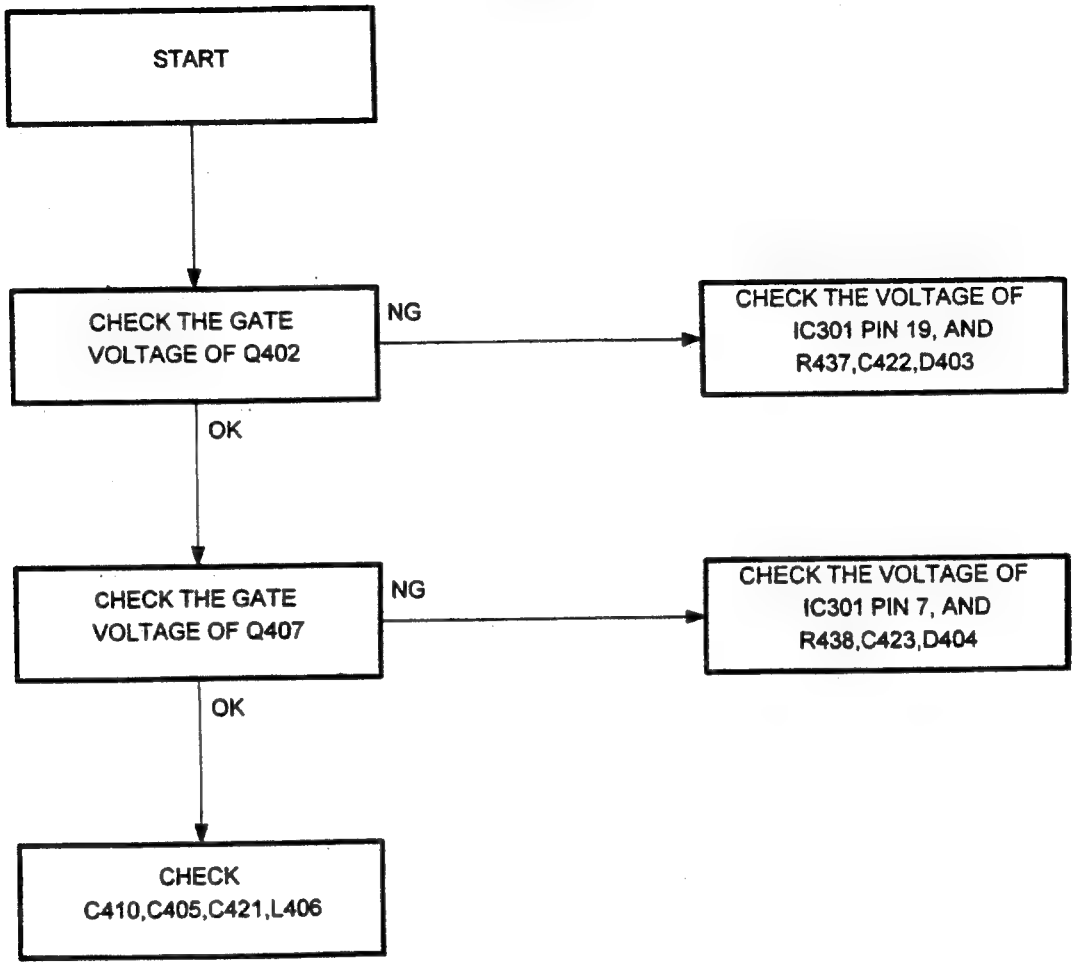
6.5.1 Horizontal Deflection Circuit



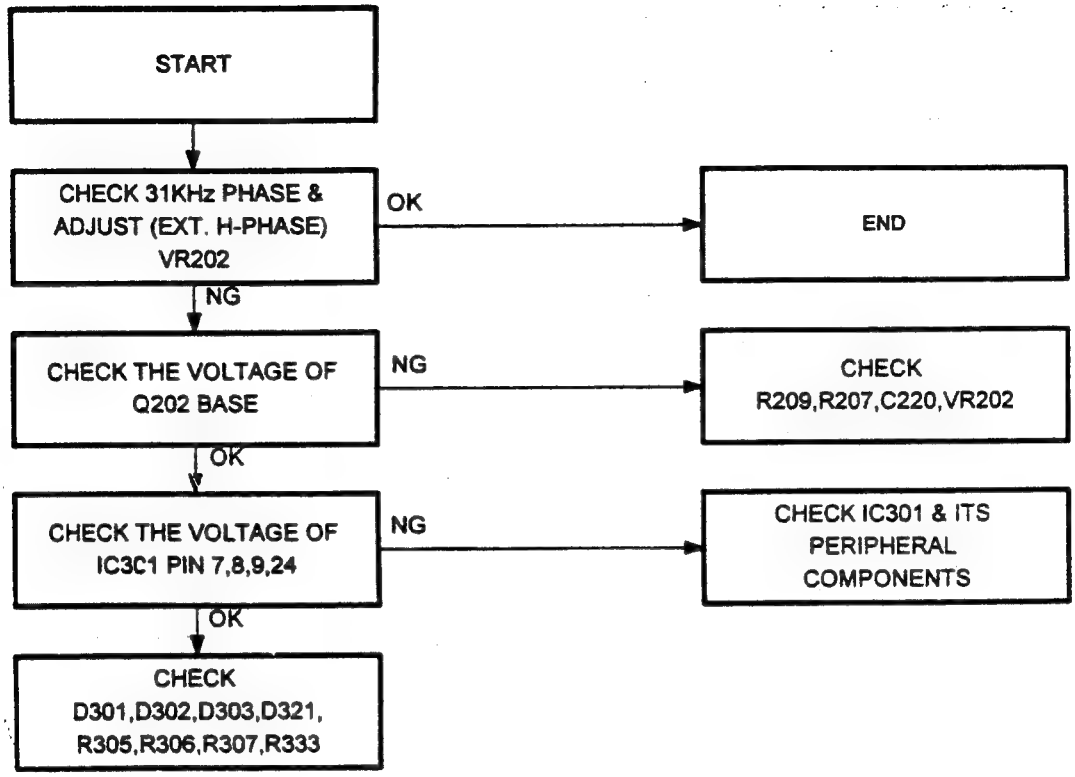
H-Asynchronous



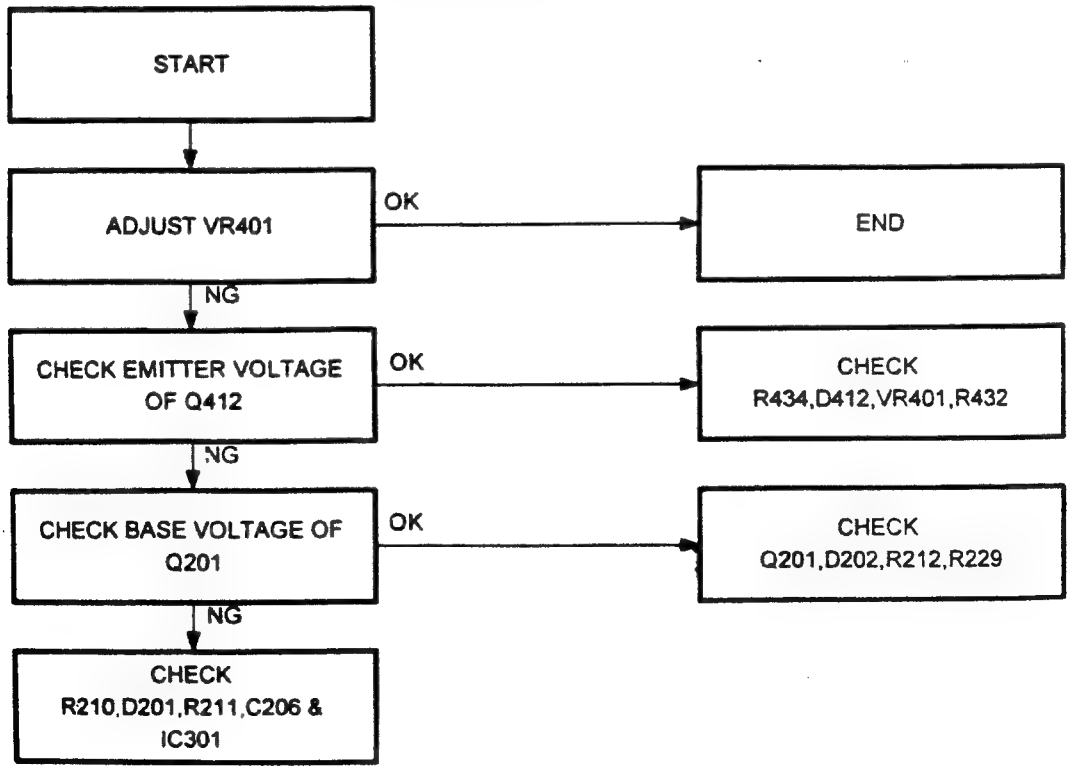
Linearity


START
CHECK THE GATE VOLTAGE OF Q402
NG
CHECK THE VOLTAGE OF IC301 PIN 19, AND R437,C422,D403
OK
CHECK THE GATE VOLTAGE OF Q407
NG
CHECK THE VOLTAGE OF IC301 PIN 7, AND R438,C423,D404
OK
CHECK C410,C405,C421,L406

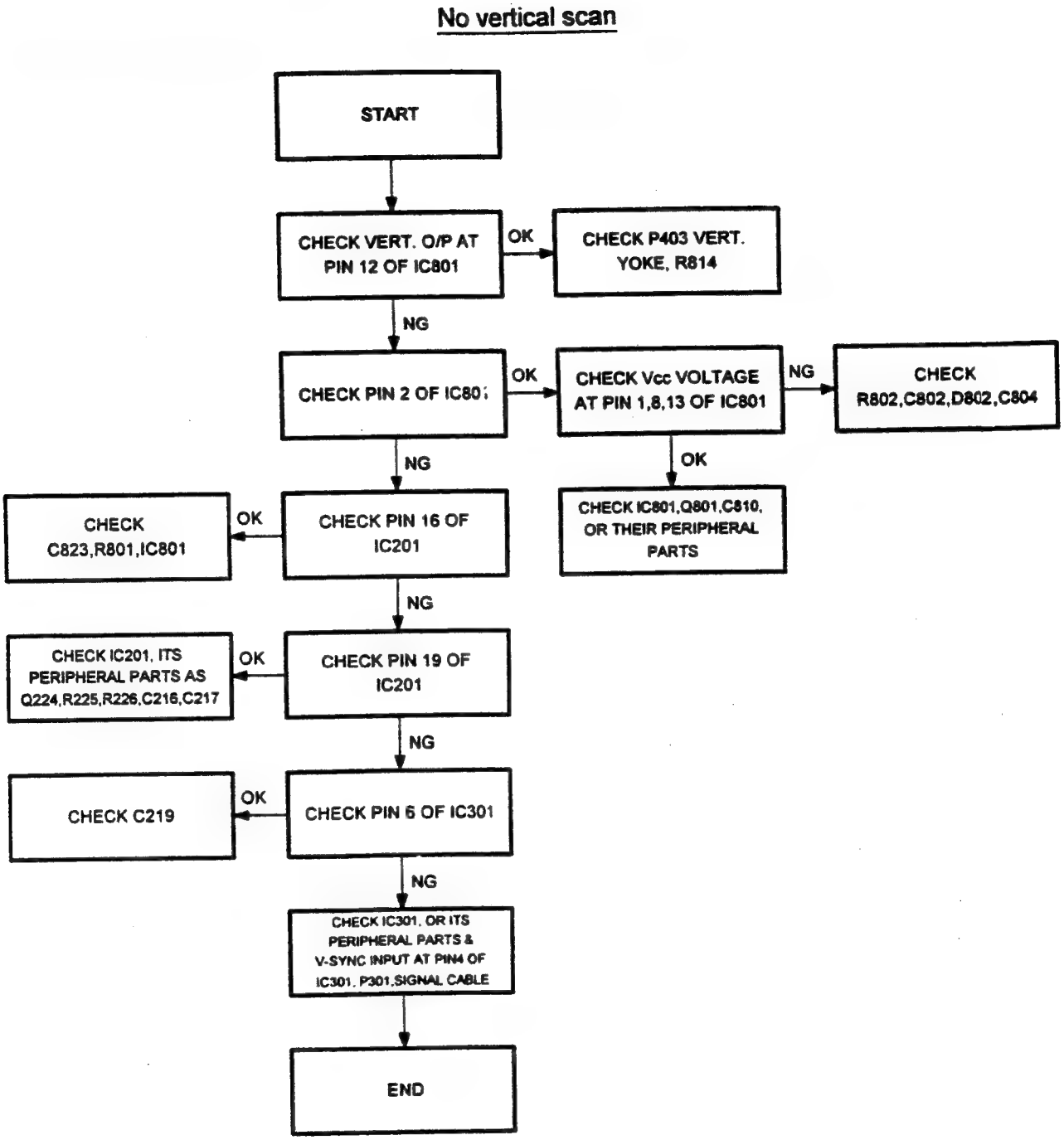
Out of phase



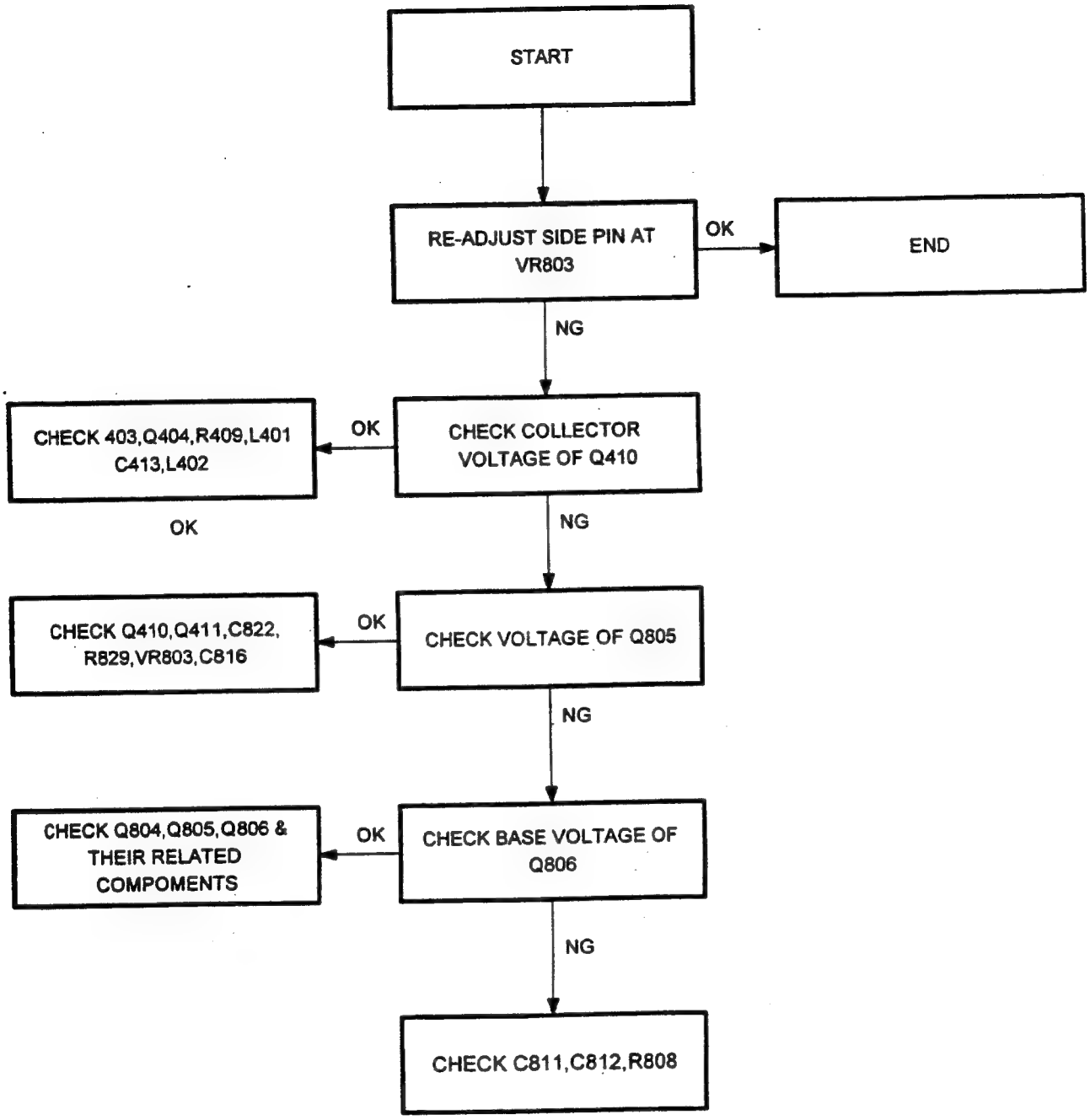
Width Abnormal



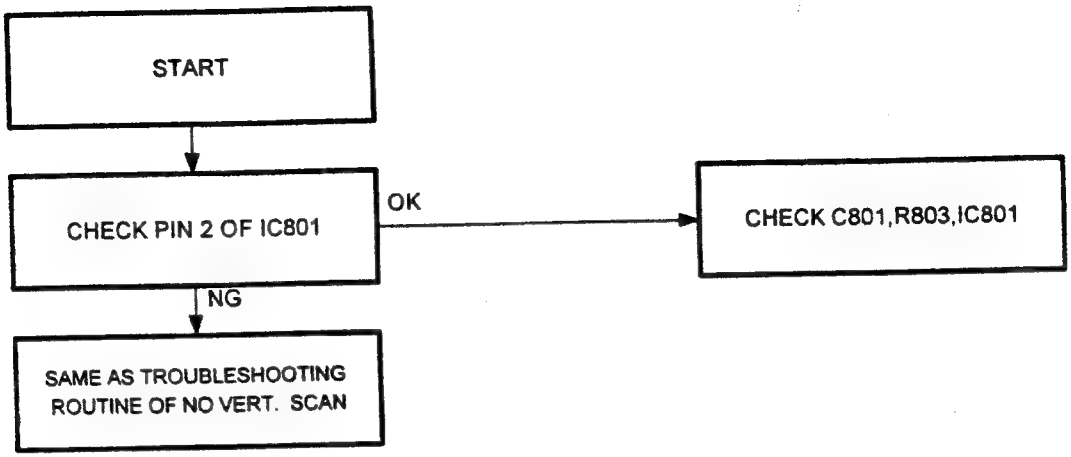
6.5.2 Vertical Deflection Circuit



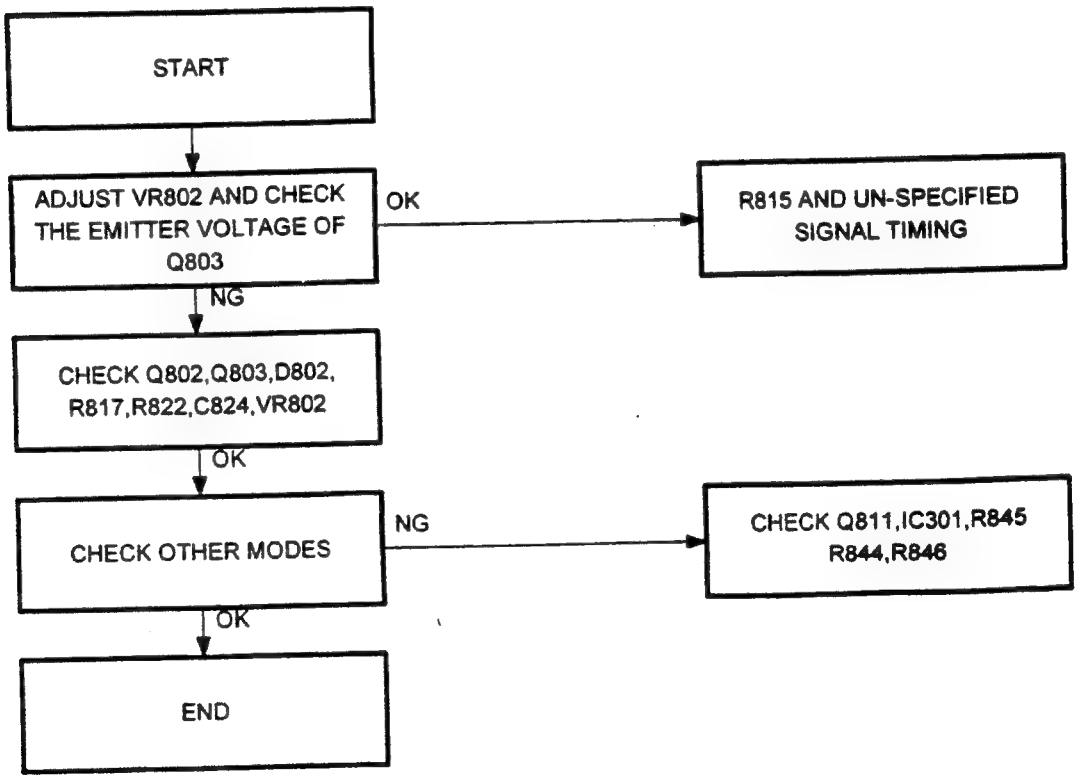
Side pin distortion



V-Asynchronous

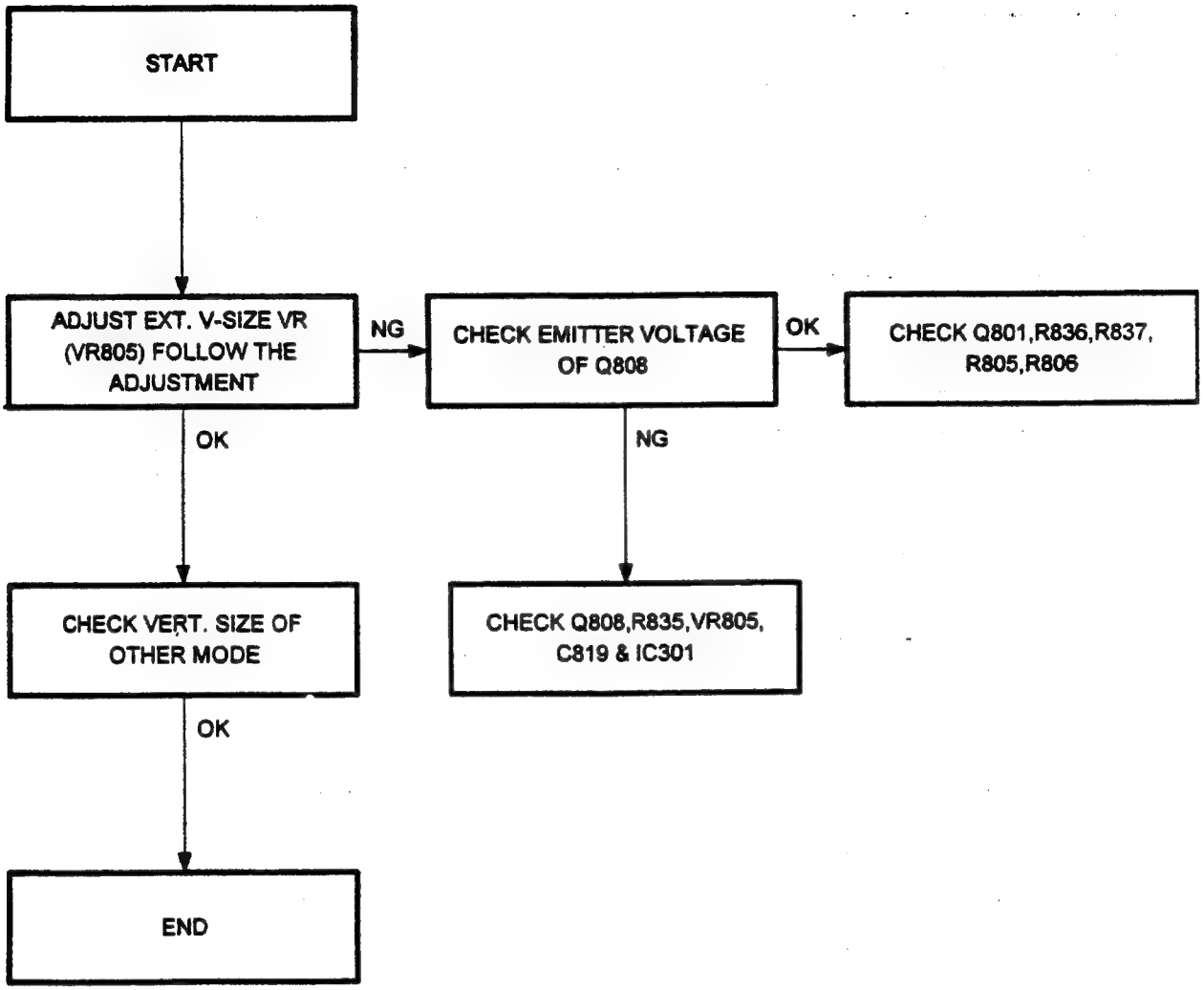


Vertical position



REMARK: fH horizontal frequency

Vertical Size



The following voltage records were measured with cross-hatch pattern.

Transistor Unit:volt

TR	Q201 (2SC733)			Q202 (2SA733)			Q301 (2SC945)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	11.35	0.0	11.61	1.93	GND	2.58	5.08	23.41	4.67
SVGA II	8.82	GND	9.44	1.95	GND	2.60	5.08	23.44	4.66
8514A	8.29	GND	8.91	2.19	GND	2.82	5.07	23.41	4.65
VGA-350	7.38	GND	8.01	2.32	GND	2.96	5.08	23.21	4.68

TR	Q401 (BU2508AF)			Q402 (2SK2134)			Q403 (2SD313)		
PIN / MODE	G	D	S	G	D	S	B	C	E
8514NI	-0.25	148.30	GND	22.46	48.3	21.58	0.55	15.83	0.0
SVGA II	-0.32	112.28	GND	12.55	21.74	11.89	0.54	11.82	GND
8514A	-0.33	104.47	GND	12.38	31.6	11.72	0.53	14.56	GND
VGA-350	-0.33	91.22	GND	21.80	11.03	10.99	0.53	10.96	GND

TR	Q404 (2SA733)			Q405 (BF423)			Q406 (2SC2688)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	15.75	0.55	15.83	15.83	147.95	5.17	148.58	76.29	GND
SVGA II	11.62	0.57	11.82	11.82	11.49	3.75	112.13	74.08	GND
8514A	14.52	0.53	14.44	14.44	103.42	3.28	104.05	74.08	GND
VGA-350	10.88	0.53	10.96	10.96	90.35	2.87	90.97	75.83	GND

TR	Q407 (2SK2134)			Q408 (BF423)			Q410 (BF423)		
PIN / MODE	G	D	S	B	C	E	B	C	E
8514NI	22.21	47.62	21.69	1.58	-1.97	2.34	77.29	21.5	78.25
SVGA II	21.91	11.71	11.61	1.53	-2.07	2.28	57.88	11.24	58.75
8514A	24.88	14.72	14.70	1.54	-3.77	2.29	53.68	14.68	54.53
VGA-350	21.28	11.0	10.95	1.50	-2.55	2.25	46.88	10.82	47.7

TR	Q411 (BF422)			Q412 (2SA733)			Q501 (2SK2134)		
PIN / MODE	B	C	E	B	C	E	G	D	S
8514NI	9.75	29.66	9.13	11.08	GND	11.63	4.0	59.71	0.12
SVGA II	7.85	29.83	7.22	9.02	GND	9.66	2.85	59.86	0.08
8514A	7.46	28.80	6.83	8.51	GND	9.15	2.56	59.92	0.07
VGA-350	6.8	24.77	6.16	7.69	GND	8.33	2.09	59.96	0.05

TR	Q502 (FB422)			Q503 (2SC945)			Q801 (2SC945)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	2.96	107.22	2.43	0.67	0.01	GND	2.86	6.02	2.34
SVGA II	2.22	82.19	1.70	0.67	0.01	GND	2.86	6.03	2.34
8514A	2.06	76.69	1.54	0.67	0.01	GND	3.99	5.99	3.44
VGA-350	1.8	67.85	1.28	0.67	0.01	GND	3.83	6.02	3.30

TR	Q802 (2SC945)			Q803 (2SA733)			Q804 (2SC945)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	11.3	23.54	11.4	10.75	GND	11.4	6.14	18.17	5.54
SVGA II	11.26	23.46	11.37	10.72	GND	11.37	6.13	18.16	5.52
8514A	11.24	23.41	11.34	10.61	GND	11.34	6.14	18.16	5.55
VGA-350	11.16	23.23	11.24	10.61	GND	11.25	6.14	18.16	5.55

TR	Q805 (2SA733)			Q806 (2SA733)			Q808 (2SA733)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	6.15	15.02	5.53	4.37	GND	5.01	2.18	GND	2.86
SVGA II	6.14	15.42	5.52	4.35	GND	5.0	2.18	GND	2.87
8514A	6.17	14.01	5.55	4.36	GND	5.01	3.28	GND	3.96
VGA-350	6.17	14.14	5.55	4.37	GND	5	3.15	GND	3.83

TR	Q809 (2SA733)			Q810 (2SC945)			Q811 (2SA733)		
PIN / MODE	B	C	E	B	C	E	B	C	E
8514NI	5.2	GND	5.71	0.73	0.32	GND	23.43	12.89	23.43
SVGA II	3.76	GND	4.32	0.73	0.32	GND	23.47	12.92	23.46
8514A	3.29	GND	3.85	0.72	0.41	GND	23.42	12.87	23.41
VGA-350	2.87	GND	3.44	0.72	0.36	GND	23.23	12.63	23.24

Integration Circuit

IC	IC201 (7851)									
PIN / MODE	1	2	3	4	5	6	7	8	9	10
VGA-350	7.94	8.42	8.6	-0.3	4.22	3.57	6.81	6.59	6.4	12.31
PIN / MODE	11	12	13	14	15	16	17	18	19	20
VGA-350	7.09	4.36	0.0	GND	NG	3.60	0.21	3.19	6.04	12.32

Integration Circuit

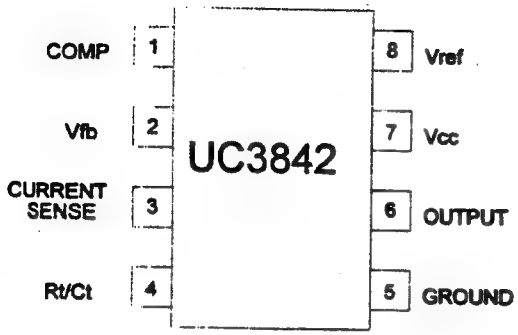
IC	IC301 (7851)						
PIN MODE	1	2	3	4	5	6	7
8514NI	2.33	2.41	3.08	3.36	0.47	0.04	0.17
SVGA II	2.33	2.41	0.57	0.2	0.6	0.03	11.46
8514A	2.33	2.41	0.63	0.23	0.67	0.07	11.45
VGA-350	2.33	2.41	0.57	3.38	0.59	0.02	11.45
PIN MODE	8	9	10	11	12	13	14
8514NI	0.09	0.14	1.43	3.48	GND	0.7	3.12
SVGA II	0.08	0.14	1.44	3.47	GND	0.77	3.12
8514A	12.31	0.14	2.86	2.73	GND	0.75	3.12
VGA-350	12.31	11.39	2.23	3.23	GND	0.6	3.12
PIN MODE	15	16	17	18	19	20	21
8514NI	3.12	0.74	2.29	11.06	2.1	2.07	2.07
SVGA II	3.12	0.72	2.76	7.01	2.13	2.09	2.1
8514A	3.1	0.63	2.9	6.23	3.08	3.07	3.08
VGA-350	3.11	0.63	3.16	5.01	2.95	2.94	2.95
PIN MODE	22	23	24	25	26	27	28
8514NI	8.83	8.79	12.3	2.06	0.01	NC	5.08
SVGA II	7.19	0.01	12.31	2.1	7.14	NC	5.08
8514A	6.57	6.53	12.31	0.01	6.52	0.63	5.08
VGA-350	6.10	6.07	12.30	2.94	6.07	NC	5.08

IC	IC501 (UC3843)							
PIN MODE	1	2	3	4	5	6	7	8
8514NI	3.48	2.49	0.12	0.19	GND	4.06	12.32	4.99
SVGA II	3.34	2.49	0.08	0.3	GND	2.89	12.32	5.0
8514A	3.26	2.49	0.07	0.34	GND	2.57	12.32	5.0
VGA-350	3.13	2.49	0.05	0.41	GND	2.11	12.32	5.0

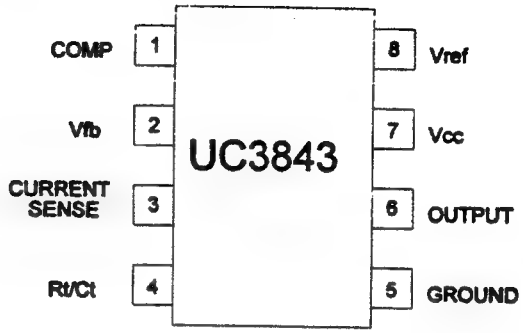
IC	IC801 (LA7837)												
PIN MODE	1	2	3	4	5	6	7	8	9	10	11	12	13
VGA-350	11.7	3.61	5.85	6.01	11.13	5.44	5.95	23.16	1.36	1.47	GND	12.85	23.0

7.0 IC CONFIGURATION

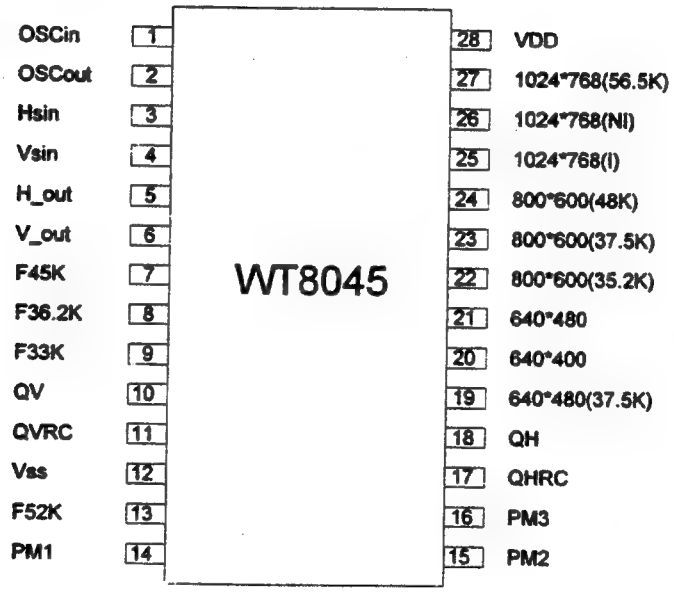
1. IC101 (3842)



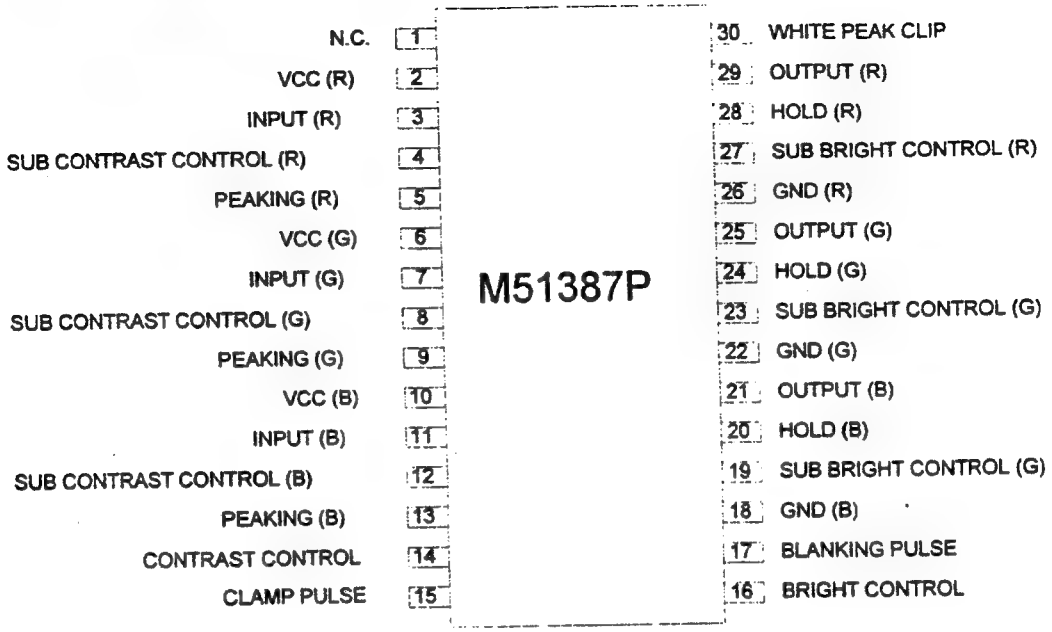
2. IC501 (3843)



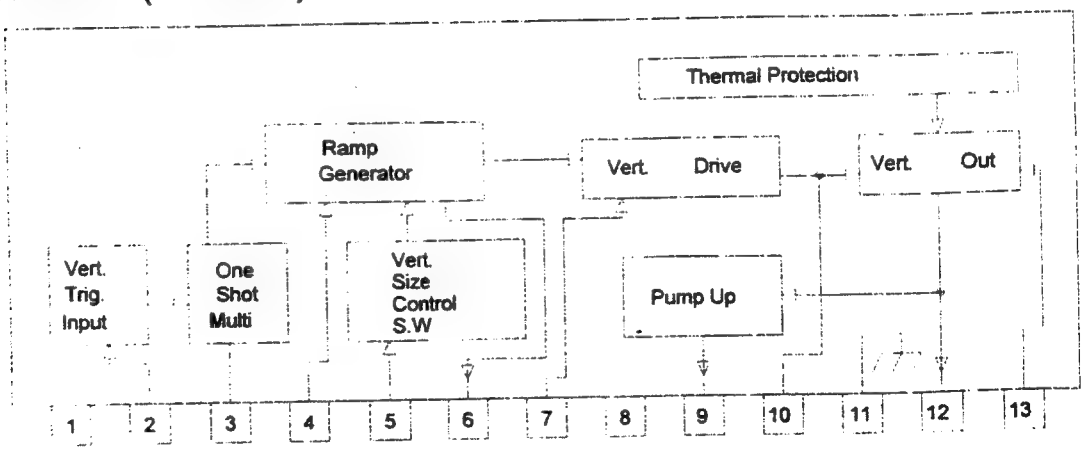
3. IC301 (WT8045)



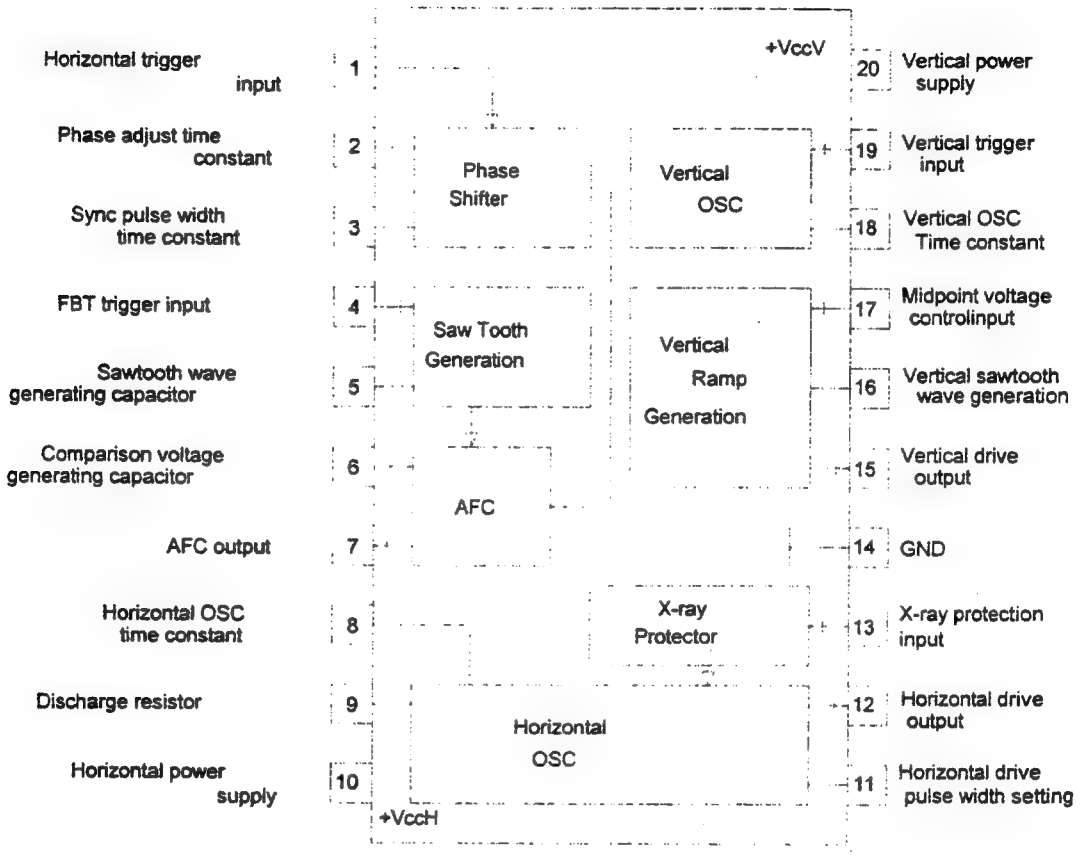
4. IC601(M51387P)



5. IC801(LA7837)



6. IC201(LA7851)



8.0 LAYOUT FOR MAIN COMPONENTS AND ADJUSTED

9.0 CIRCUIT DIAGRAM

10.0 SPARE PARTS LIST & TRANSISTOR PINS ARRANGEMENT

MAIN BOARD REV.B					
ITEM	PART NO.	DESCRIPTION	LOCATION	PIN'S ARRANGE	REMARK
1	17A06-150H	3842/17384	IC101		
2	17A06-140H	LA7851	IC201		
3	17A01-002M	8045	IC301		
4	17A06-190H	3843	IC501		
5	17A06-110H	LA7837	IC801		
6	15D67-F000	600V 4A PBL405	BD101		
7	49FB2-0A0B	250V 3.15A	F101		
8	14K22-0908	2SK2141	Q101	GDS	
9	14A92-021B	2SA733	Q102,Q116,Q201,Q202, Q404,Q412,Q803,Q806, Q808,Q809,Q811	ECB	
10	14A92-061E	BF423	Q405,Q408,Q410	ECB	
11	14C92-011E	BF422	Q411,Q502	ECB	
12	14C92-111B	2SC945	Q111,Q115,Q301,Q503, Q801,Q802,Q804,Q805, Q810	ECB	
13	14B26-030B	2SB772	Q110	ECB	
14	14C26-040B	2SC2688	Q406	ECB	
15	14K22-110B	2SK2134	Q402,Q407,Q501	GDS	
16	14D22-110C	2SD313	Q403	BCE	
17	14D26-0108	2SD882	Q114	ECB	
18	14C3P-140P	BU2508DF	Q401	BCE	
19	15S3C-601F	1500V 3A 3TH41	D402		
20	47F13-0420	FBT	T401		

CRT BOARD REV.B					
ITEM	PART NO.	DESCRIPTION	LOCATION	PIN'S ARRANGE	REMARK
1	17A04-020H	M51387P	IC601		
2	14C92-031E	PH2369	Q601,Q602,Q603	CBE	
3	14A26-100C	2SC3788	Q604,Q605,Q606	ECB	

11.0 CRT CONTRAST LIST

THE 1451C SERIES MONITOR HAVE SEVERAL KINDS OF CRT AS LIST.

THE DIFFERENT PARTS BETWEEN THEM HAVE BEEN SHOWN IN FOLLOW.

LR

TYPE PARTS	HITACHI 20H14-026A	CHUNGHWA 20H14-106B	PANASONIC 20H14-116C	TOSHIBA 20H14-1561	SAMSUNG 20H14-276A
R330	24K 1/8W 23A11-243M	27K 1/8W 23A11-273M	24K 1/8W 23A11-243M	27K 1/8W 23A11-273M	24K 1/8W 23A11-243M
R433	15K 1/4W 22225-153M	16K 1/4W 22225-163M	15K 1/4W 22225-153M	15K 1/4W 22225-153M	15K 1/4W 22225-153M
R434	4.3K 1/4W 22225-432M	5.1K 1/4W 22225-512M	4.3K 1/4W 22225-432M	5.1K 1/4W 22225-512M	5.1K 1/4W 22225-512M
R508	30K 1/4W 22225-303M	30K 1/4W 22225-303M	30K 1/4W 22225-303M	30K 1/4W 22225-303M	36K 1/4W 22225-363M
R805	110K 1/4W 22225-114M	110K 1/4W 22225-114M	100K 1/4W 22225-104M	110K 1/4W 22225-114M	110K 1/4W 22225-114M
R807	39K 1/8W 22215-393M	39K 1/8W 22215-393M	39K 1/8W 22215-393M	39K 1/8W 22215-393M	39K 1/8W 22215-393M
R808	4.7K 1/8W 22215-472M	4.7K 1/8W 22215-472M	4.7K 1/8W 22215-472M	4.7K 1/8W 22215-472M	4.7K 1/8W 22215-472M
C823	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R
JUMP WIRE	J51	J51	J52	J52	J52
DEGAUSSING COIL	46G00-0059	46G00-0059	46G00-0063	46G00-0059	46G00-0063

NORMAL

TYPE PARTS	HITACHI 20H14-0263	GOLDSTAR 20H14-2460	ORION 20H14-2660	MITSUBISHI 20H14-1860	CHUNGHWA 20H14-1061
R433	16K 1/4W 22225-163M	16K 1/4W 22225-163M	15K 1/4W 22225-153M	18K 1/4W 22225-183M	16K 1/4W 22225-163M
R434	5.1K 1/4W 22225-512M	5.1K 1/4W 22225-512M	5.1K 1/4W 22225-512M	5.6K 1/4W 22225-562M	4.7K 1/4W 22225-472M
R508	39K 1/4W 22225-393M	36K 1/4W 22225-363M	36K 1/4W 22225-363M	30K 1/4W 22225-303M	36K 1/4W 22225-363M
R805	75K 1/4W 22225-753M	68K 1/4W 22225-683M	75K 1/4W 22225-753M	110K 1/4W 22225-114M	75K 1/4W 22225-753M
R807	39K 1/8W 22215-393M	DELETE	DELETE	39K 1/8W 22215-393M	DELETE
R808	4.7K 1/8W 22215-472M	5.1K /18W 22215-512M	5.1K 1/8W 22215-512M	4.7K 1/8W 22215-472M	4.7K 1/8W 22215-472M
C823	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R	0.01 μ 39146-103R
R803	47K 1/8W 22215-473M	120K 1/8W 22215-124M	120K 1/8W 22215-124M	120K 1/8W 22215-124M	120K 1/8W 22215-124M
R809	270Ω 1/8W 22215-271M	82Ω 1/8W 22215-820M	82Ω 1/8W 22215-820M	82Ω 1/8W 22215-820M	82Ω 1/8W 22215-820M
C801	6800P 31115-682R	1000P 31115-102R	1000P 31115-102R	1000P 31115-102R	1000P 31115-102R
C807	10P 38196-100R	DELETE	DELETE	DELETE	DELETE

CRT /BOARD

P602

HS	1
VS	2
CLAMP	3
CONTRAST	4
GND	5

P603

6.3V	1
G1	2
BLK	3
12V	4
GND	5
85V	6

IC301 8045

IC201 LA7851

IC101 UC3842

CHUNTEX ELECTRONIC CO., LTD.			
MODEL :	1451C	PRT. NO :	11S31-039A
NAME :	MAIN	FILE NAME :	M39CW01
REV :	C	DRAWN :	SUE YI CHEN
DATE :	1996/01/10	CHECK :	JEAN
UPDATE:	M.Y.LEE	UPDATE CHECK:	C.M.LENG

1	2	3	4	5	6	7	8	9	10
Vp-p 3.4V [H]	Vp-p 3.4V [V]	Vp-p 4.8v [H]	Vp-p 4.2V [V]	Vp-p 7.8V [H]	Vp-p 5.3V [H]	Vp-p 4.3V [H]	Vp-p 2.3V [H]	Vp-p 4.4V [H]	
19	20	21	22	23	24	25	26	27	
Vp-p 1.228kV [H]	Vp-p 11.8V [H]	Vp-p 3.4V [H]	Vp-p 940mV [H]	Vp-p 3.6V [V]	Vp-p 1.68V [V]	Vp-p 42.4V [V]	Vp-p 2.1V [V]	Vp-p 720mV [V]	

IC801 LA7837

P403
VER.-YOKE (-)
VER.-YOKE (+)
HOR.-YOKE (-)
HOR.-YOKE (+)

P402 NON

P404 NON

T401
H-V
FOCUS
G2

T402
JP401

P105 POWER LED
AMBER
GREEN

IC501 UC3843

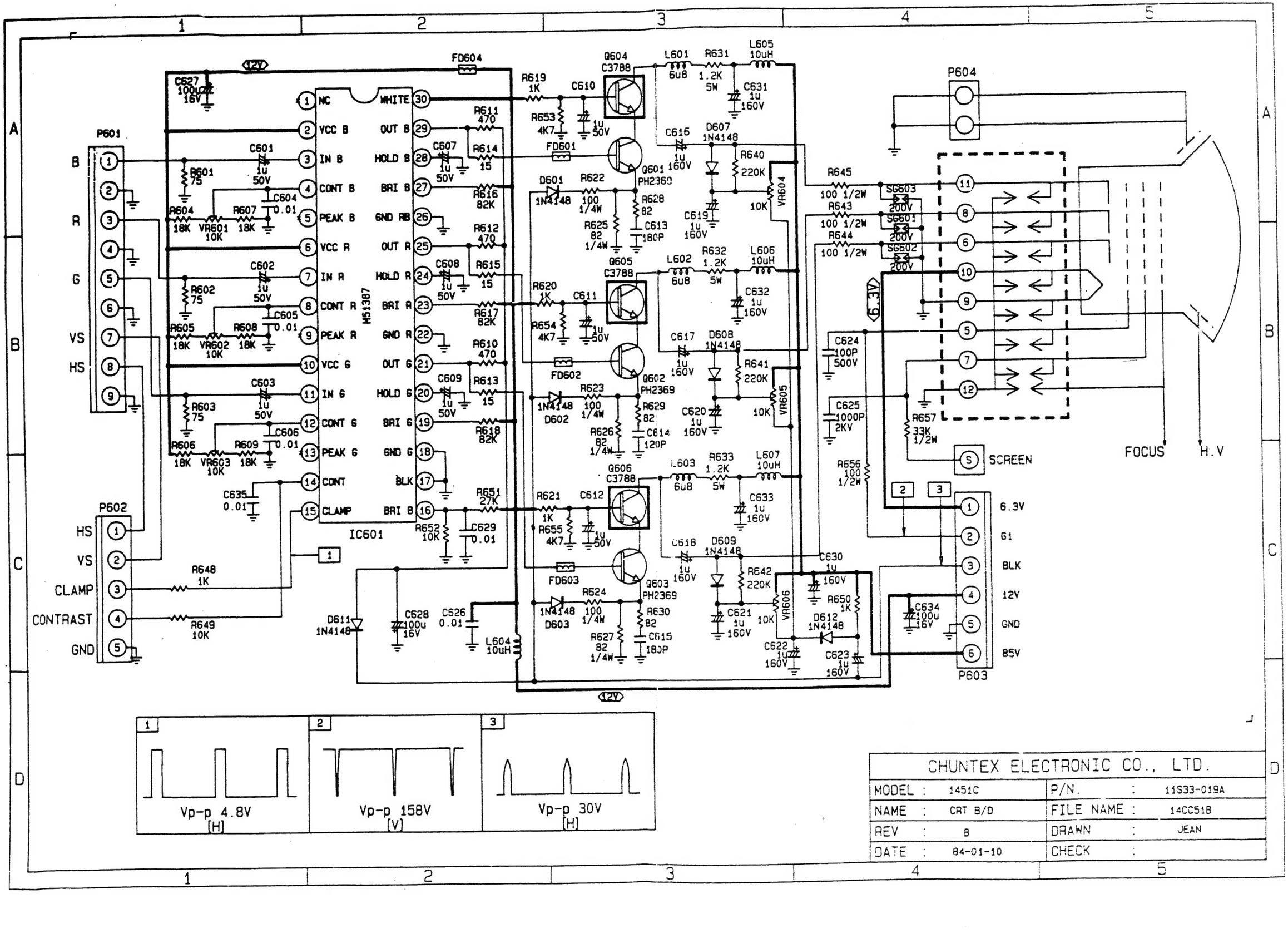
VR801 2K V-LIN
VR802 20K EXT. V-POS
VR803 30K SIDE-PIN
VR804 20K
VR805 20K EXT. V-SIZE
VR401 20K EXT. H-SIZE
VR402 20K EXT. BRIGHTNESS
VR403 20K EXT. CONTRAST
VR501 20K ADJ. HI-VOLTAGE 24KV

	1451C	1451C LR
D104		1N4148
D108		1N4148
R519	10K	9K1
R807		39K
R808	5K1	4K7
R116		10K 1/4W
R433	18K 1/4W	18K 1/4W
R508	36K 1/4W	30K 1/4W

	1451C	1451C LR
R434	5.6K 1/4W	4.3K 1/4W
R131		56K 1/4W
R805	68K 1/4W	110K 1/4W
R114		JUMPER
R102	220 2W	
J51	JUMPER	
J52		JUMPER
RL101	J73 J74	RELAY

	1451C	1451C LR
Q102		A733
C116		47u 25V
C110		1u 50V
R440		120 1/2W
C424		2200P 1KV
C412		0.01u 630V
C408		3900P 630V

10 Vp-p 4.4V [H]
11 Vp-p 7.9V [H]
12 Vp-p 9.1V [H]
13 Vp-p 4.2V [V]
14 Pk-Pk 4.2V [V]
15 Vp-p 3.6V [V]
16 Vp-p 3.2V [H]
17 Vp-p 3.0V [H]
18 Vp-p 10.5V [H]
Vp-p 8.6V [H]
Vp-p 720mV [V]
28 Vp-p 4.5V [V]
29 Vp-p 290mV [V]
30 Vp-p 4.1V [V]
31 Pk-Pk 3.9V [V]
32 Vp-p 158V [V]
33 Vp-p 30V [H]
34 Vp-p 16.2V [H]
35 Vp-p 3.5V [H]
36 Vp-p 550mV [H]



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CHUNTEX ELECTRONIC CO., LTD.			
MODEL : 1451C		P/N. :	11S33-019A
NAME : CRT B/D		FILE NAME :	14CC51B
REV : B		DRAWN :	JEAN
DATE : 84-01-10		CHECK :	

MAIN BOARD

BRIGHTNESS VR402 · CONTRAST VR403 · V-CENTER VR802 · V-SIZE VR805 · H-PHASE VR202 · H-WIDTH VR401

Q301 · Q811

IC301 · P301 · IC201 · Q202 · Q201 · Q808 · Q801 · VR301 · VR201 · TP3 · VR801

P102 · BD101 · TP1 · Q803 · Q802 · Q804 · Q810 · Q405 · Q805 · Q806

P105 · Q102 · Q103 · Q408 · Q412 · Q809 · IC801 · VR803

Q104 · Q105 · Q113 · Q116 · P401 · Q411 · Q410

Q112 · P403 · P402

Q101 · Q114 · Q115 · Q407 · G D S · D402 D401

Q403 · E C B · Q404 · Q402 · G D S

T101 · D111 · Q110 · B C E · Q406 · A C E · T402 · Q401 · E C B

IC101 · P103 · Q501 · T401

85V ADJ · VR101 · Q111 · G D S · P404

F101

Q503 · Q502 · IC501 · VR501

H.V. ADJ

REV: B

SIDE-PIN V-LIN H-HOLD H-F/V

CRT BOARD

VR604 · Q604 · VR605 · Q605 · VR606 · Q603 · Q602 · Q606

Q601

B · H2 · H1 · R · GND · CRT · G · G1

IC601

VR602 · VR603 · VR601

P601 · P602

D402 D401

1451C